

REQUIRED TOPIC 7: FOOD AND DIABETES

This protocol consists of several topics about food, meal planning and nutrition. Choose one or more of these topics depending on the clients' needs and interests. Topics do not need to be taught in order and no more than one topic should be introduced at a time. You can use the assessment questions at the end of this protocol to assess the client's knowledge.

STATEMENT OF THE PROBLEM

An important part of successfully managing diabetes is creating a healthy meal plan and eating pattern. A healthy meal plan is also important in managing other problems that may accompany diabetes such as obesity, heart disease, kidney disease and high blood pressure.

KEY MESSAGES

1. There is no such thing as a "diabetic diet." Rather, people with diabetes, like everyone else, should eat a healthy diet that includes a variety of foods.
2. Food raises blood sugar. Food intake needs to be adjusted to achieve blood sugar target levels.
3. Use the diabetes plate method to prepare healthy meals.
4. See a registered dietitian for help in developing an individualized meal plan.
5. Making dietary changes can be difficult, but it is more manageable when done in small steps. Start with one change and build on it.

BACKGROUND

Thinking about food and making food choices are often the most difficult parts of living with diabetes for many people. Healthy eating for a person with diabetes is very similar to healthy eating for a person without diabetes. For most people living with diabetes, it's a matter of eating a wide variety of foods and a balanced amount of carbohydrates, proteins, and fats.

PLANNING HEALTHFUL MEALS

A meal plan is something that is used every day and takes into account the foods the person likes to eat, their blood sugar values, weight and personal goals. Individualized help with planning healthy meals and pattern is available from a registered dietitian. They will be able to teach about portions and serving sizes and help determine how many servings of each food group a person should eat each day to reach their diabetes goals (goals may include weight loss, lower blood sugar, lower blood pressure, etc.). But, everyone with diabetes can work on a healthy meal plan on their own by using the guidelines that follow.

HEALTHY DIETARY HABITS

In general, healthy dietary habits consist of eating at regular times, eating about the same amount of food every day, eating a variety of foods, balancing types of food at each meal, and drinking alcohol in moderation. Healthy dietary habits also include eating less added salt, sugar, and fat.

Eating at Regular Times:

Eating meals at regular times every day will help keep blood sugar more consistent. Skipping meals can cause the blood sugar to drop too low and can also make someone very hungry, so that they have a tendency to overeat later in the day. This can lead to high blood sugar and weight gain. While eating three small meals and a snack may help some people keep their blood sugar more even throughout the day, this is not necessarily true for everyone. Meal plans should be individualized to each person.

WHAT'S IN FOOD?

Foods are made up of six nutrients that feed our bodies and make them healthy:

- Carbohydrate
- Protein
- Fat
- Vitamins
- Minerals
- Water

The three nutrients that contain calories and can affect blood sugar are:

- Carbohydrate
- Protein
- Fat

CARBOHYDRATES (SUGAR, STARCH, FIBER)

Starches, sugars, and fiber make up carbohydrates. In the body, carbohydrates (except for fiber) get broken down into glucose, a sugar that is the body's main source of energy. Foods that are high in carbohydrates have the biggest effect on blood glucose or sugar. Whole grain carbohydrate-rich foods slow down the rise in blood sugar and help you feel fuller. Examples of healthier foods with carbohydrates include: whole grain cereals, bread, and pasta, whole corn or whole wheat tortillas, whole fruit, legumes, starchy vegetables such as squash, corn, or peas, and nonfat or low fat milk products.

SUGAR

People with diabetes can eat foods with sugar, but these foods need to be balanced or "traded" with other sources of carbohydrates at that meal or later in the day. Foods that are high in sugar are often higher in fat as well.

FIBER

Fiber is a type of carbohydrate but we do not digest for energy or calories. Fiber adds bulk to our diet and helps keep our bowels regular. Foods that are high in fiber may also help keep blood sugar lower after a meal. Fiber also helps us feel fuller so that we eat less at meals. Choosing foods that include whole wheat or whole grain is a good way to increase your fiber intake. Fruits, vegetables, and beans are also good sources of fiber. Here are some tips to help you increase your fiber intake:

- Eat whole grain breads (vs. white enriched flour and grain products).
- Add oats to meatloaf or use oat flour for baking and thickening foods.
- Eat fresh fruits and vegetables with their skins on (apples, potatoes, carrots, tomatoes).
- Use beans more often as a side dish and eat bean dishes such as chili, bean soup, split pea soup.
- Add vegetables to other dishes such as spaghetti sauce, soups, salads, and casseroles.

PROTEIN

Protein is used as the building blocks for the body. Protein is important for healing and maintaining muscle and bone strength as well. While getting enough protein is an important for a healthy diet, most Americans eat more protein than they really need. Good sources of lean protein include

- Nonfat and low fat milk products
- Lean cuts of beef and poultry
- Beans and other legumes, which are high in fiber and low in fat as well.
- Nuts and seeds contain protein, but can be high in calories and fat.
- Seafood is one of the best sources of protein and tends to be lower in saturated fat and cholesterol than other types of meats.
- Grains and vegetables also contain protein, although have less per serving than animal products.

FAT

Regardless of the type, all fats are high in calories. All fats and oils are made up of different types of fats: saturated, polyunsaturated, and monounsaturated. Saturated fats are found in higher amounts in butter, whole milk, meats, cheese and many snack foods. Foods such as olive oil, canola oil, and corn oil, nuts, and fish have a higher amount of healthier fats called monounsaturated or polyunsaturated fats.

Many processed foods use “partially hydrogenated” or *trans* fats. This type of fat raises our “bad” cholesterol more than other types and should be avoided. Cholesterol is a type of fat only found in animal foods. Too much cholesterol and saturated fats may lead to atherosclerosis or narrowing and hardening of the arteries. This will increase the risk of heart attack or stroke.

It’s best to eat smaller amounts of high fat foods, and choose healthier, unsaturated fats whenever possible.

SALT

Many people with type 2 diabetes also have high blood pressure. High blood pressure, in addition to diabetes, can increase the risk of heart attack and stroke. Reducing our intake of salt and sodium can help reduce blood

pressure. Most of the sodium or salt we consume is in overly-processed or prepared foods such as crackers, snacks, canned or packaged foods. It is a good practice to read labels for sodium content and compare products. Using less added salt at meals and when you cook will also help.

ALCOHOL AND DIABETES

An occasional alcoholic drink, especially when taken with a meal, is unlikely to cause harm or affect blood sugars. But, alcohol tends to be high in calories, so it should be factored in to a meal plan. These are some important tips about consuming alcohol:

- Always talk to your health care provider to learn if you can safely consume alcohol. Some medications, including some diabetes medications, may interact with alcohol.
- Moderate alcohol intake is defined as 2 drinks for men and 1 drink for women daily.
- Alcohol can lower blood sugar if consumed on an empty stomach. Always have a snack with an alcoholic beverage.

Signs of low blood sugar are similar to signs of too much alcohol (being drunk). There is a risk that a person having a hypoglycemic (low blood sugar) reaction may not get the help they need as they may be mistaken for someone who had too much alcohol.

Some health problems (for example, high triglycerides, pancreatitis or liver disease) can worsen with alcohol.

Alcohol can affect thought processes and inhibitions. It is easier to overeat when drinking and/or to become less careful with monitoring and ignoring worsening symptoms associated with diabetes.

It's a good idea for someone with diabetes to tell a friend the signs/symptoms of low blood sugar and how to treat low blood sugar, if they plan to drink alcohol. It's an even better idea to limit the intake of alcohol to a moderate amount.

READING LABELS

Reading and understanding food labels will provide you with information to make healthier choices. The Nutrition Facts Label located on a food package will tell you the serving size and the amount of nutrients such as calories, total fat, saturated fat, sodium, fiber and, carbohydrates per serving. The serving size on a food package is not necessarily a portion size. You may choose to eat more or less of the food than what is listed.

All food packaging has a list of ingredients under the Nutrition Facts. They are listed in order by weight, which means the first ingredient makes up the largest portion of the food. Checking over the ingredient list is a good way to spot things you'd like to avoid. For example, you may want to avoid foods that have fat as one of the first ingredients on the list.

It is helpful to check out the label when grocery shopping and soon you will know which brands/items are healthier choices.

Here is an example of a Nutrition Facts section of a food label:



SERVING SIZE AND SERVINGS PER CONTAINER:

At the top, you'll see serving size and then the number of servings per container. Ask yourself, "How does the serving size compare to your usual portion?" For example, if you would normally eat 2 cups of this product, then you'll need to double all the numbers in the Nutrition Facts section.

AMOUNT OF NUTRIENTS PER SERVING:

Total amounts are shown in grams, abbreviated as g, or milligrams, shown as mg (one-thousandth of a gram). For example, a teaspoon of butter or oil weighs 5 grams. Instead of trying to estimate how much you are getting in terms of your nutrient needs, we can use the Percent Daily Value, or %DV.

PERCENT DAILY VALUE:

The Percent Daily Value (%DV) indicates how much of a specific nutrient is contained in a serving based on a 2000 calorie meal plan. A product is considered an *excellent* source if it contains 20% or more of the Daily Value. A product is considered a *good* source of a particular nutrient if one serving provides 10-19% of the Daily Value. If the Daily Value is 5% or less, the food is *low* in that nutrient. Some nutrients are undesirable at excellent or good



levels, such as sodium and saturated fat. Other nutrients are desirable at an excellent or good level such as fiber, calcium, iron or vitamin C.

CALORIES

To determine how many calories you need to eat a day to maintain your weight depends on how much you weigh and how active you are. If you are trying to lose weight, you will need to consume fewer calories than your body burns for energy. A registered dietitian can help you estimate your calorie and other nutrient needs and help you create a meal plan for healthy weight loss. You can begin to reduce your calories by reading the labels on foods and choose lower calorie foods (especially helpful when comparing similar products).

TOTAL FAT

If you look at the grams of total fat per serving on a Nutrition Facts Label, you will see that total fat is broken down into fats that are good for you, such as mono-and polyunsaturated fats, and fats that aren't as good for you, such as saturated and trans fats. A low fat food has 3 grams of fat or less per serving. Most people need between 50 and 75 grams of total fat daily. It is a good idea to eat as little trans fat as possible. Avoid foods that list "partially hydrogenated oil" in the ingredients.

SATURATED FAT

Most people should eat less than 20 grams of saturated fats daily.

CHOLESTEROL

Although we make most of the cholesterol found in our bodies, foods high in cholesterol may increase your blood cholesterol. Look for lower cholesterol foods in general. Foods with less saturated fat generally have less cholesterol as well. A good goal is to eat less than 200-300 mg of cholesterol daily.

SODIUM

The recommended total daily intake of sodium for healthy adults is 1500-2300 grams per day. This is less than 1 teaspoon of salt daily. Most of our sodium intake comes from processed foods.

TOTAL CARBOHYDRATES

If you look at the grams of total carbohydrate on the Nutrition Facts label, you will see that it includes both fiber and sugar. Some people think that you only have to avoid sugar, but all carbohydrates (except for fiber) raise blood sugar. If you look only at the sugar number, you may omit foods that are healthy such as fruits and milks, while over-eating foods such as cereals that have no sugar, but may contain a significant amount of carbohydrates. For people with diabetes, counting and keeping track of total carbohydrates will help manage blood sugars. Most people should eat between 200 and 300 grams of carbohydrate daily, spread throughout the day.

FIBER

Fiber is the part of a plant food that is not digested. Dried beans such as kidney or pinto beans, fruit, vegetables and whole grains and cereals are all good sources of fiber. Most adults should eat 25-35 grams of fiber per day. A food that is a good source of fiber has 5 or more grams per serving.

PROTEIN

The amount of protein an adult needs every day is based on their body size and health status. On average, we need 10% of our total calories as protein. Many Americans eat more protein than they really need.

WAYS TO USE THE INFORMATION ON THE NUTRITION FACTS LABEL:

Choose foods that have smaller amounts of saturated fat, cholesterol and sodium.

Try to select foods that have more fiber.

Other Tips:

If a product says “sugar free,” that doesn’t mean that it doesn’t contain calories or carbohydrates. Often these foods will use sugar alcohols instead of sugar. While this type of sweetener is lower in total carbohydrates, it will still raise blood sugars. In addition, eating too much sugar alcohol can give you diarrhea. Check the ingredient list for the type of carbohydrate that is used in sugar-free foods. Non-carbohydrate sweeteners such as saccharin, sucralose, or aspartame do not have calories or carbohydrates.

Be sure to read Nutrition Facts Labels of products that are advertised as “fat free.” Often these foods are higher in sodium and/or sugar and are no healthier than the regular version.

FOODS AND PORTION SIZE:

Portion sizes recommended for each food group:

- Meat, fish, or poultry: about 3 ounces or about the size of a deck of cards per meal
- Cheese-1 ounce (about the size of your thumb).
- Milk (soy, rice, goat, or cow’s), yogurt: 1 cup is an average portion size for most people per meal
- Rice, pasta, grains, or starchy vegetables: 1 cup is a good portion size per meal
- Non-starchy vegetables: most adults need 2 to 2 ½ cups daily
- Whole fruits (not juice): most adults need 1 ½ to 2 cups daily

Counting carbohydrates:

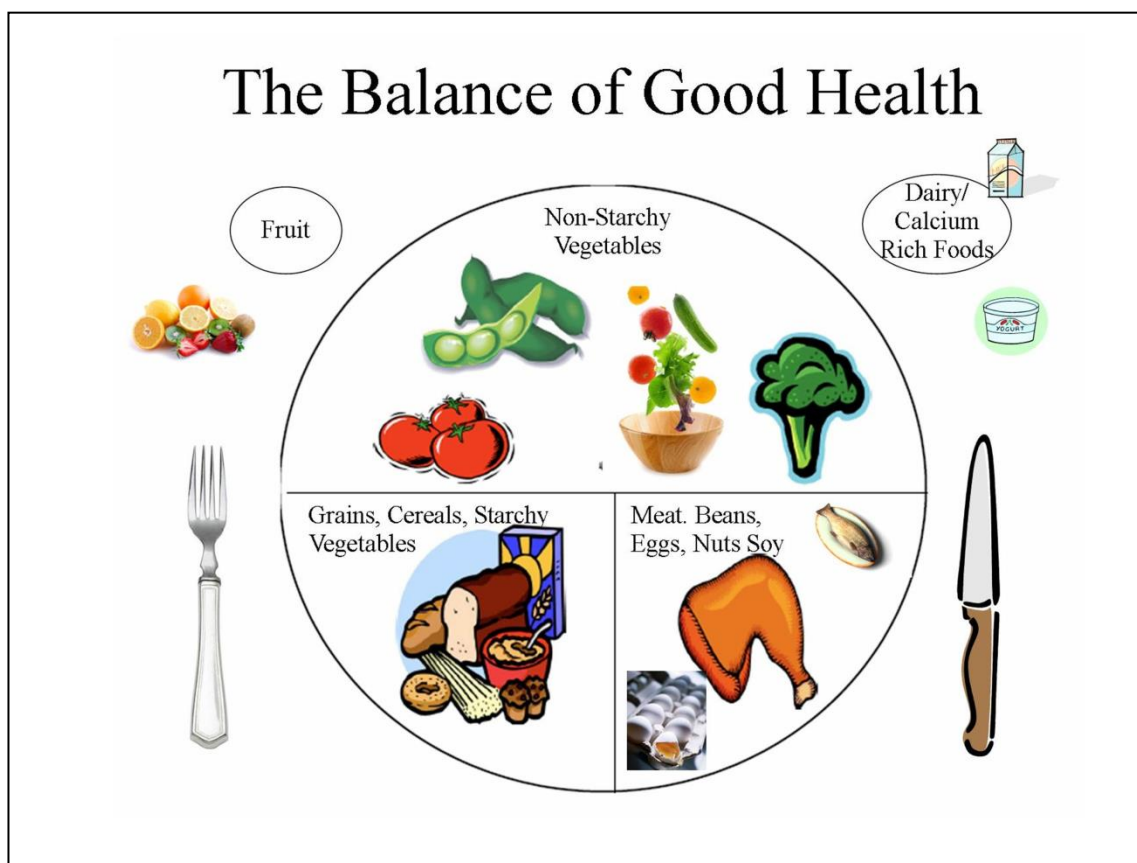
The list below contains some serving size guidelines for carbohydrate-rich foods. Each serving size contains approximately 15 grams of carbohydrates. One serving from each of these foods will raise your blood sugar about the same amount. On average, most people with diabetes should eat 3-4 servings (45-60 grams) of carbohydrate at each meal. You can use this list to estimate the amount of carbohydrate you want to eat at each

meal. Remember, your individual portion size may be more or less than one serving. For example, if you would like a cup of rice at your dinner meal, this is 3 servings of carbohydrates, or 45 grams.

- Milk, yogurt, fresh vegetables-1 cup (about the size of a tennis ball or your fist).
- Bread-one slice (the size of a compact disc case)
- Cooked rice-1/3 cup
- Cooked pasta-1/3 cup
- Potato or corn-1/2 cup
- Dry unsweetened ready-to-eat cereal-3/4 cup
- Cooked unsweetened cereal (oatmeal, grits, cream of wheat) – 1/2 cup
- Cooked, dried beans (pinto, lima, red, black) – 1/2 cup

CREATING A HEALTHY PLATE

You can begin to eat a more healthful diet simply by creating a Healthy Diabetes Plate. All you need to do is fill your plate so that it matches the Plate Method picture guide below, add a piece of fruit and/or a glass of milk or other beverage, and you are done.



A Healthy Diabetes Plate is divided as follows:

- One-quarter of the plate for carbohydrate-rich foods such as rice, noodles or pasta, tortillas, bread, cereal, or starchy vegetables



- One-quarter of the plate for meat or protein food (may skip at breakfast)
- 1 small piece of fruit (or as a snack between meals)
- One-half plate of vegetables (may skip at breakfast)

A Healthy Plate can be used for breakfast, lunch and dinner meals. Adding protein and vegetables to your breakfast meal is optional.

If you add the recommended 4 – 4 ½ cups of fruit and vegetables to your daily meal plan, be sure to substitute them for other foods. For example, if you would normally eat 1-½ cups of rice with your dinner meal reduce the rice to 1 cup or less and fill half the plate with vegetables.

A Healthy Plate includes protein as well. Choose smaller portions of lean meats (beef, pork, poultry, seafood, etc.) or substitute animal sources of protein with legumes and beans. Remember that grains and vegetables are sources of protein as well. Many people think that adding protein-rich foods to meals will help lower blood glucose after a meal. While additional protein at a meal may increase one's satiety or feeling of fullness, protein will not change overall blood sugars after the meal. Carbohydrate-rich foods are the main contributor to blood sugar levels after eating.

Healthy fats are those that are rich in monounsaturated fatty acids. These are the types of fats found in greatest amount in olive oil, canola oil, many nuts and seeds, and avocados. Using these types of oils and fats in cooking is a good idea, but don't add them to your meal; instead substitute them for other fats.

If you use a Healthy Plate to get more vegetables into your meals, balance the amount of carbohydrates, manage portions of protein, and eat healthier oils and fats, you will have come a long way toward eating more healthfully, controlling your weight, and managing your diabetes.

Follow these basic guidelines from the American Diabetes Association for healthy meals every day:

- There is no single "diabetes diet"
- Eat meals and snacks at regular times every day.
- Eat about the same amount of food every day.
- Try not to skip meals.
- Balance food intake with daily physical activity or exercise
- If you are trying to lose weight, cut down on your
- Choose whole grains more often
- Eat less added sugar, fat, and salt.
- See a Registered Dietitian for more specific help on calories and meal planning

DIABETES FOOD MYTHS AND FACTS

Myth: People with diabetes should eat special diabetic foods.

Fact: A healthy meal plan for people with diabetes is generally the same as a healthy diet for anyone – low in fat (especially saturated and trans fat), moderate in salt and sugar with meals based on whole grain foods, vegetables and fruit. Diabetic and "dietetic" foods generally offer no special benefit. Most of them still raise blood glucose levels, are usually more expensive and can also have a laxative effect if they contain sugar alcohols.

Myth: If you have diabetes, you should only eat small amounts of starchy foods, such as bread, potatoes and pasta.

Fact: Starchy foods can be part of a healthy meal plan, and portion size makes all of the difference. Whole grain breads, cereals, pasta, rice and starchy vegetables like potatoes, yams, peas and corn can be included in meals and snacks. How much carbohydrate-rich foods you consume depends on how many calories you need, how active you are, and if you manage your diabetes with insulin or oral medications.

Myth: People with diabetes can't eat sweets or chocolate.

Fact: If eaten as part of a healthy meal plan, sweets and desserts can be eaten by people with diabetes. If you choose to eat dessert, eat a smaller amount of other carbohydrate-rich or starchy food at that meal. The key to sweets is to have a very small portion and save them for special occasions so that you can focus your meal on more healthful foods.

Myth: Fruit is a healthy food. Therefore, it is ok to eat as much of it as you wish.

Fact: Fruit is a healthy food that contains fiber and lots of vitamins and minerals. Because fruits contain carbohydrates and this nutrient raises blood sugar, fruits need to be planned for and included in your overall meal plan.

PATIENT OUTCOMES/GOALS

By the end of the educational session, the client with diabetes will be able to:

- State that the three nutrients that have calories and affect the blood sugar are carbohydrate, protein and fat.
- State the types of foods that are major sources of these three nutrients.
- State that food sources of carbohydrates have the greatest impact on blood glucose/sugar.
- Read a Nutrition Facts Label for carbohydrate and other nutrient content.
- Identify approximate serving sizes and understand the difference between serving sizes and portion sizes.
- Understand how to create a Healthy Diabetes Plate.

CHW ACTIONS	PARTICIPANT ACTIONS
<ul style="list-style-type: none"> • Affirm things the participant is already doing regarding dietary management. • Ask if the participant has seen a dietitian or other health professional for dietary counseling. Does the participant have a meal plan? • Determine if the participant has basic knowledge about dietary management e.g. knows the basic food groups and quantities recommended, knows 	<ul style="list-style-type: none"> • Use a paper plate to practice creating a healthy plate using favorite and preferred foods. • Practice reading labels using foods already in the home. • Identify a behavior change that could be made to improve dietary management of diabetes. • Examples of a behavior change include: keeping a one day food diary (listing everything eaten with

<p>how to read and use food label information in planning meals and understands the role of food in managing diabetes.</p> <ul style="list-style-type: none"> • Ask participant permission to look through their pantry with them. Ask them to pick out a food item and use the food item to guide discussion on reading labels. • Demonstrate a healthy diabetes plate with food models. • Ask what goal the participant could set for changing some aspect of food management over the next few weeks. 	<p>portions), making an effort to read labels when purchasing food at the grocery store, making an appointment with the dietitian/other health professional for personalized meal preparation or making a shopping list for on-going use.</p>
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ASSESSMENT QUESTIONS

- Have you seen a dietitian for information on food and diabetes or to develop a personalized meal plan?
 - If so, when was your last visit and please explain what your meal plan consists of?
- Do you know what nutrients have calories and which foods or nutrients will raise blood sugar the most?
- Do you know what foods contain carbohydrate, protein, or fat?
- What do you know about fiber? Can you name two foods that you like to eat that are high in fiber?
- Do you know what is meant by a Healthy Diabetes Plate? Can you describe or illustrate what this would mean for you?
- Do you know how to read and understand a Nutrition Facts Label? How do you use food labels to help plan diabetes meals?

TOOLS/TEACHING AIDES

AIDES:

- Food labels (pick some you are familiar with)
- Measuring utensils (cups, spoons)
- Food models
- Paper plates for healthy diabetes plate meal planning

HANDOUTS

1. **Topic 7 Coversheet**.....[English](#) | [Spanish](#)
2. **[Healthy Plate Method](#)**
Source: [Public Health – Seattle & King County](#)
3. **[Healthy Bowl Method](#)**
Source: [Public Health – Seattle & King County](#)
4. **Examples of Healthy Meals**[English](#) | [Spanish](#)
Source: [Public Health – Seattle & King County](#)
5. **You Can Eat Healthy Meals**[English](#) | [Spanish](#)
Source: [Public Health – Seattle & King County](#)
6. **Tips for Healthy Eating**[English](#) | [Spanish](#)
Source: [Public Health – Seattle & King County](#)
7. **Good Fats, Bad Fats**.....[English](#) | [Spanish](#)
Source: [Learning About Diabetes, Inc.](#) 2006
8. **What Counts as a Cup**[English](#) | [Spanish](#)
Source: [CDC](#)
9. **How to Read a Nutrition Facts Label**[English](#) | [Spanish](#)
Source: [Learning About Diabetes, Inc.](#) 2006
10. **Action Plan**.....[English](#) | [Spanish](#)
Source: [Public Health – Seattle & King County](#)

REFERENCES

“Diabetes Basics, Living with Diabetes, Food and Fitness.” “Diabetes Myths.” American Diabetes Association. Website: www.diabetes.org

“Healthy Eating: Make it Happen – Weight Loss and Exercise. American Diabetes Association. Website: <http://www.diabetes.org/weightloss-and-exercise/weightloss/healthy-eating.jsp>

Type 2 Diabetes: A Curriculum for Patients and Health Professionals. American Diabetes Association, 2002.

Weight Loss Matters. American Diabetes Association website: <http://www.diabetes.org/weightloss-and-exercise/weightloss/portion-size.jsp>

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V.1.	12/23/2011	Original	KA/ JK	Yes
V.2.	10/17/2013	Revised	JK/KN	Yes
V.2.1	07/24/2014	Updated Formatting	ND	Yes